

What is claimed is:

1. A rotary fluid pressure device of the type including housing means having a fluid inlet port and a fluid outlet port; a fluid pressure-operated displacement means associated with said housing means, and defining a plurality of expanding and contracting fluid volume chambers in response to movement of a moveable member of said displacement means; a valve member cooperating with said housing means to provide fluid communication between said inlet port and said expanding volume chambers, and between said contracting volume chambers and said outlet port; an input-output shaft rotatably supported relative to said housing means and drive means for transmitting rotational movement between said input-output shaft and said moveable member of said displacement means; a seal assembly disposed radially between said input-output shaft and said housing means, and cooperating therewith to define a pressurized case drain region; characterized by said seal assembly comprising, in the order of the direction of leakage flow from said pressurized case drain region;
  - (a) a high pressure shaft seal;
  - (b) an annular chamber in which is disposed a rigid back-up member disposed adjacent said high pressure shaft seal, said back-up member cooperating with one of said housing means and said high pressure shaft seal and said input-output shaft to define fluid passage means;
  - (c) a drain passage disposed between said annular chamber and a case drain port, whereby fluid leaking from said case drain region past said high pressure shaft seal flows through said fluid passage means, then through said drain passage to said case drain port; and
  - (d) a low pressure shaft seal.

2. A rotary fluid pressure device as claimed in claim 1, characterized by said rigid back-up member comprising an annular metal member defining a plurality of radially-extending notches, said notches comprising said fluid passage means.
3. A rotary fluid pressure device as claimed in claim 2, characterized by said notches being disposed immediately adjacent said high pressure shaft seal, said radially-extending notches and said seal cooperating to define said fluid passage means .
4. A rotary fluid pressure device as claimed in claim 1, characterized by said high pressure shaft seal being selected such that no substantial leakage flow is permitted by said high pressure shaft seal, from said case drain region to said drain passage during an initial time period T1, thus maintaining a pressure in said case drain region which comprises at least about one-half of the pressure in said inlet port.
5. A rotary fluid pressure device as claimed in claim 1, characterized by said fluid pressure-operated displacement means comprises an internally-toothed ring member and an externally-toothed star member, which comprises said moveable member, said star member being disposed eccentrically within said ring member for relative orbital and rotational movement.

6. A rotary fluid pressure device as claimed in claim 1, characterized by said valve member comprising a hollow, generally cylindrical spool valve member, wherein the fluid pressure present in said inlet port surrounds said spool valve member over at least a limited axial extent thereof, and said case drain region being disposed at least partially within said spool valve member.
7. A rotary fluid pressure device as claimed in claim 1, characterized by said back-up member cooperating with said input-output shaft to define axially-extending fluid passage means.
8. A rotary fluid pressure device as claimed in claim 7, characterized by said back-up member cooperating with said housing means and said input-output shaft to define radially-extending fluid passage means providing fluid communication from said axially-extending fluid passage means to said drain passage.